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NEW TO OKLAHOMA: *MURDANNIA KEISAK* (COMMELINACEAE)

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ABSTRACT

This paper documents the occurrence of a vascular plant taxon previously unknown to the flora of Oklahoma. *Murdannia keisak,* an Asian member of the Commelinaceae, was discovered in the Mountain Fork River in southeastern McCurtain County.

KEY WORDS: *Murdannia*, Commelinaceae, Oklahoma, McCurtain County, exotic

Murdannia keisak (Hassk.) Hand.-Mazz. (Commelinaceae; watermoving herb) is a weedy annual forb native to eastern Asia (Faden 2000; Seward 1958). In North America it was first reported in 1935 from South Carolina (Hotchkiss 1940, 1951), although the New York Botanic Garden herbarium has a Louisiana collection from 1927 (Dunn & Sharitz 1990a). It has since been found throughout the southeastern USA, as well as in Oregon and in Washington, where it is listed as a noxious weed (BONAP 2013; USDA, NRCS 2013; Washington Administrative Code 2005). *Murdannia keisak* has also been found in Europe (Faden 2000). The collections reported here are the first for the state of Oklahoma (Hoagland et al. 2004).

Vouchers. **USA. Oklahoma.** McCurtain Co.: On the Lower Mountain Fork River, Presbyterian Falls area, T5S R26E Sec. 31, 29 Aug 2013, *Buthod & Hoagland AB-10591* (OKL); on the Lower Mountain Fork River, Presbyterian Falls area, T5S R26E Sec. 31, 4 Oct 2013, *Buthod & Hoagland AB-10592* (OKL).

In the USA, *Murdannia keisak* is found in wet areas including river and creek margins, tidal marshes, swamps, and ditches (Faden 2000; Hotchkiss 1951; Rundell & Diamond 1999). It is thought to have been a contaminant of rice and is frequently found in old rice fields (Dunn & Sharitz 1990a).

A sterile specimen of *Murdannia keisak* (AB-10591) was first collected in August 2013 on the lower Mountain Fork River in southeastern McCurtain County. Associated species included *Gratiola brevifolia*, *Hydrocotyle verticillata*, *Taxodium distichum*, *Xyris jupicai*, and the endangered *Harperella nodosa*. A second, fruiting collection (AB-10592) was made approximately 1.0 km upstream in October 2013. Associated species included *Impatiens capensis*, *Itea virginica*, *Polygonum persicaria, Sacciolepis striata*, and *Taxodium disticum*. Plants of *Murdannia* at both sites numbered in the hundreds (Fig. 1).

Figure 1. Population of *Murdannia keisak* on the Mountain Fork River, McCurtain County, Oklahoma. Photo by Amy Buthod

Although rice was once grown in McCurtain County (Reasoner 1974), the presence of *Murdannia keisak* in Oklahoma may be attributed to waterfowl. *M. keisak* can produce 9,000-70,000 seeds/m^2, and they have been found in great abundance in the stomachs of ducks (Dunn and Sharitz 1990a; Hotchkiss 1940, 1951). It is also possible that pieces of the plant floated in from elsewhere; adventitious roots are produced by larger plants at the nodes, allowing for vegetative reproduction via fragmentation (Dunn and Shartitz 1990b; Ferrero et al. 2012).

According to Newberry (1991), *Murdannia keisak* may reduce rates of water flow because of its rhizomatous growth and fibrous roots. It grows fast and forms a thick mat, allowing it to outcompete native vegetation (Ferrero et al. 2012). It has also been shown to easily adapt to different environmental conditions (Dunn & Sharitz 1991). The Oklahoma population of *Murdannia keisak* will need to be carefully monitored. The Forest Service sensitive species *Calamovilfa arcuata* K.E. Rogers and *Vernonia lettermanii* Engelm. ex A. Gray are found on the Mountain Fork River, as is the western-most known population of the endangered *Harperella nodosa* (Rose) Rose (Buthod & Hoagland 2013; Hoagland et al. 2004; U.S. Forest Service 2005). We intend to evaluate the full extent of *M. keisak* in the Mountain Fork drainage in conjunction with future work on the endangered *Harperella nodosa*.

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